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AUTHOR Oskarsson, Mats
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ABSTRACT

Students learning foreign languages often experience difficulty in mastering new vocabulary and expanding their lexicon. This paper attempts to clarify the role of the native language in the acquisition of new words. Does an adult learn foreign words quicker if the native language is employed (bilingual method) or if words are explained in the foreign language (monolingual method)? Some previous research indicates that use of bilingual wordlists yields better results than learning vocabulary in context or by a mixed method. For this experiment, groups of adult students in Sweden were taught new English words by monolingual and bilingual methods. Similar language lessons were taught each group, with the glossaries the only variables. Learning was tested with Test A, a variant of the cloze procedure. For Test B target-language questions based on texts read were asked, and questions were linked to definitions in monolingual glossaries. Results were consistently in favor of the bilingual treatment. (CHK)

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ON THE ROLE OF THE MOTHER TONGUE IN LEARNING FOREIGN LANGUAGE VOCABULARY: AN EMPIRICAL INVESTIGATION

BY

MATS OSKARSSON

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Language Teaching Research Center
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On the Role of the Mother Tongue in Learning Foreign Language Vocabulary: An Empirical Investigation

Mats Oskarsson

Introduction

Most foreign language students experience at one time or another difficulties in acquiring a proper lexical command of the new code. Older students in particular often find it difficult to retain and expand their vocabulary and feel that this problem is the chief obstacle to real language mastery. Accordingly vocabulary expansion should be recognized as a major problem area in language learning and an important object of scientific investigation. There is, however, a regrettable paucity of experimentation and evidence in the field. Most of the research involving verbal material has been concerned with general laws of learning, retention, forgetting, transfer-of-training, etc. often on the basis of memorization of lists of nonsense syllables paired with meaningful partners in various ways. Experiments with such paired associates have certainly told us a great deal about the nature of concept formation and other aspects of human learning, but the results are not directly relevant to the learning of the lexical elements of a foreign language in a classroom situation. Carroll (1966, p. 75) and other psycholinguists have stressed the point that there is no self-evident affinity between the learning of a concept in a psychological laboratory setting (e.g. DAX as the name of a certain geometrical shape of a certain colour) and learning the meaning of unknown words in school. Surveying verbal learning Jung (1968) states that the acquisition of a foreign language vocabulary is analogous to paired-associate learning but goes on to say that the existence of such parallels is not the primary reason for the psychologists' frequent employment of the paired-associate paradigm as a learning task. In order to study learning generally

one simply needs a task that may serve as a vehicle so that some learning can occur. Others have asserted that rote verbal learning is a very peculiar case of linguistic performance: "(The argument . . . consists of evidence that) rote learning does not furnish simple, atomic structures that can be used for the analysis of more complex performance, i.e. speech" (Glanzer, 1967, p. 209).

The similarity between the learning situations of the psychological laboratory subject and the "real-life" language students is thus rather superficial and it is therefore of little help to turn to the verbal learning literature for guidance in vocabulary teaching matters. For other aspects of verbal behaviour there is a wealth of knowledge amassed in the literature on serial and paired-associate paradigms, the two standard tasks in verbal learning studies.

Aims

The present paper attempts to clarify a basic problem in foreign language learning, namely the question of the role of the native language in the acquisition of new words.[1] Does one, as an adult, learn foreign words quicker if one's native language is employed (bilingual method), than if one has the words explained in the foreign language (monolingual method)? Or does the employment of the native language hinder rather than help the student to attain real mastery of the foreign language? The aim of the experiments to be described was to determine the relative effectiveness of monolingual and bilingual glossaries in teaching foreign language vocabulary to adult students. Before describing the procedures and results of my own experiments I will make a brief review of previous research.

Related research

As indicated above there has not been a great deal of research done on vocabulary learning in a classroom setting. The following classroom experiments all have some bearing on my own investigation.

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1) The present article is a summary of the experiments. The full report can be obtained from the author (Address: The Language Teaching Research Center, University of Gothenburg, S-431 20, Sweden)

Seibert (1930) investigated the relative efficiency of studying lists of French words in English-French associated pairs and in context (sentences). Two mixed methods (the words studied half the time in lists of English-French pairs and half the time in context and vice versa) were also evaluated. Seibert wanted to ascertain whether college students who had studied bilingual lists could use the words when needed in a context and, conversely, whether words studied in context could be remembered when separated from the context.

On the basis of the results the author concluded that the method of learning foreign vocabulary by association to the native language in bilingual lists is superior to the method of learning it in a context or by a mixed method. The fact that the bilingual students were able to use the new words in a context which they had not seen previously was taken to refute the objection often raised against vocabulary learning by the translation method, viz. that the knowledge acquired that way cannot be put to use when needed in new and meaningful situations. The author likewise felt that the alleged virtues of vocabulary learning by association to a context has "proven a fallacy".

In an experiment which was otherwise very similar to Seibert's Löfgren (1968) used more elaborate post-tests to measure the effects of bilingual and contextual glossaries. Secondary school students studied German words explained either through a context (contextual word-list) or by means of native-language translations (bilingual word-list).

Overall the post-test results showed that the bilingual word-list yielded significantly better learning. The students who had used the bilingual glossary were better able to produce the words and to give the correct definite article. They were also better than the "contextual" students at spelling and could use the words more accurately in sentences of their own. The "contextual" students tended to write longer sentences and to use a larger number of different words. In the latter case the difference was statistically insignificant.

The translation method has been tested for effectiveness from various

other view-points. By way of example may be mentioned a study by Hall (1969), who compared the effects of a bilingual word-list with a pictorial list and a combination of the two (bilingual and pictorial) in the learning of concrete nouns in German. It was found that the pictorial list yielded the best and the bilingual list the poorest learning. It is to be noted that only concrete nouns that were easy to depict were included.

An experiment with monolingual and bilingual glossaries carried out by Löfgren (1966) is of immediate relevance to my own investigation. Two hypotheses were tested:

(1) The retention of new words by groups that have studied monolingual glossaries is equal to that of groups that have studied bilingual glossaries.
(2) Word learning by means of monolingual glossaries results in better long-term retention than word learning by means of bilingual glossaries.

According to hypothesis (2) a student who uses a monolingual list tends to focus attention more on the meaning of the word than does a student who is given an easy mother-tongue reference. The former will have to put in a greater effort to find out the meaning from the context, and this, in return, has a beneficial effect on learning and retention.

Six secondary school classes reading intermediate German studied two texts containing a number of new words. To each text there was a bilingual and a monolingual glossary. The post-tests showed that the students who had studied by means of bilingual glossaries achieved significantly better results than the students who had studied by means of monolingual glossaries. Hypothesis (1) was rejected at the .001 level.

A later analysis of variance of the results (Lindell, 1971, p. 114) further verified the conclusions. The variation in the data could almost exclusively be assigned to the differences between the two learning methods. The differences between groups and texts contributed very little to the total variation.

A re-test was administered after seven weeks. For practical reasons only one of the classes, the one showing the smallest difference between the two methods in the immediate recall, could be tested. The results did not favour the monolingual glossary as hypothesized in (2) above. The superiority of the bilingual list demonstrated in the immediate post-test was sustained in the retention test after seven weeks. However, as only one of the six classes was re-tested it is doubtful whether the hypothesis can be rejected.

Some well-founded criticism has been levelled at this piece of research. Axelsson (1969) believes that the texts contained too many new words for a single lesson and that the tests were unfair to the monolingual method inasmuch as "the listening comprehension and oral skills were completely disregarded". More weighty, it seems, is the objection that the monolingual lists were of less than ideal quality (the item irgendwo = 'nicht ganz sicher wo' is not very enlightening, for example). In our own experiment we have tried to produce clear and easy-to-understand target language definitions so as not to put the monolingual method at a disadvantage from the outset. Some of the items were taken from authorized text-books, the others were carefully worked over and phrased in collaboration with native speakers. Also in answer to some of the criticism voiced against Löfgren's experiment we have attempted a more varied and unbiassed testing technique (see pp. 7-9).

The Present Experiments

As stated above the aim of the experiments was to determine the relative effectiveness of monolingual and bilingual glossaries in the learning of new words in a foreign language. For this purpose groups of adult students were taught new English words accordning to two different principles: (a) the meaning of the words explained in the target language, i.e. English (monolingual treatment), and (b) the meaning of the words explained by means of the native-language equivalents (bilingual treatment). The experimental teaching was centered around two texts written by the author in collaboration with native speakers. The only variables in the lessons were the glossaries.

Subjects and Design. The investigation comprised two experiments. A total of 60 students took part in the first experiment and a total of 46 in a replication of the same experiment six months later. The average age of the subjects was 23 years. The majority had studied English for about five years previously. Two different schools were involved.

The subjects were matched on the basis of general proficiency test results and were then assigned at random to two different treatment groups. In all, eight groups were involved. As an extra precaution against undesired group variability, provisions were made for all subjects to have both types of teaching. Half the groups were taught monolingually in the first session and bilingually in the second. The other half were taught bilingually in the first session and monolingually in the second. Tests were administered after each session. The design is represented in Figure 1:

	First Experiment (Groups 1-4)				Replication (Groups 5-8)			
Group:	1	2	3	4	5	6	7	8
Lesson 1 (Text 1)	ML	BL	ML	BL	ML	BL	BL	ML
Lesson 2	Tests A and B on Text 1							
Lesson 3 (Text 2)	BL	ML	BL	ML	BL	ML	ML	BL
Lesson 4	Tests A and B on Text 2							

Figure 1
The Design of the Experiments (ML= Monolingual Treatment, BL=Bilingual Treatment)

Both experiments were undertaken in 1973.
A questionnaire (see p. 9) showed that the groups were about equally acquainted with monolingual and bilingual glossaries from previous English studies.

The Lessons. The lessons were taught by four experienced teachers, two at each school. Each teacher taught both monolingual and bilingual lessons. Work in class consisted of text reading, chorus reading of the words in the lists, conversation around the texts, explanation of difficult points in the texts. In each lesson there was a period of ten minutes for individual work during which the students tried to memorize the words. At the beginning of the experiment the students had been informed that they were to learn a number of new words and that they would be tested afterwards.

The lessons were all conducted in the foreign language. The native language was only used in the form of translations of the new words in the bilingual lessons.

The Teaching Materials. Two texts, and to each a monolingual and a bilingual glossary, were produced for the experiments. The glossaries to Text 1 comprised 32 items, and the glossaries to Text 2 38 items. In order to fit the experiments as closely as possible to ordinary classroom teaching as practised in today's schools a good number of the vocabulary items were selected from modern and widely used monolingual textbooks. The English explanations to the rest of the words were written by the author and native speakers.

The Tests. Finding a valid way of testing the knowledge gained through the experimental teaching proved problematic. The nature of the investigation naturally precluded the use of the native language; elicitation of the foreign glosses by means of the mother-tongue equivalents would have strongly favoured the bilingual method. Simple target-language questions or paraphrases as stimuli, or at least as the only stimuli, would likewise have invalidated the results because of the similarity with the monolingual practice and learning tasks, i.e. the definitions, which were never at hand in the bilingual lessons. Any form of free composition or free oral discourse would have been difficult to steer in such a way that the critical words would be employed. The cloze test would probably be unsuitable, at least as the sole measurement instrument, because of the unfavourable reactions it tends to evoke.

A picture test, i.e. a test with pictorial stimuli, would favour neither method, but would in principle only allow us to test concrete nouns, a restriction which might have worked to the advantage of the monolingual method. Concrete nouns are the easiest words to explain in the target language.

Test A. After careful consideration my decision was to employ and mix two different kinds of task in the main test (Test A), namely a variant of the cloze procedure (simply blanks to be filled in) and picture-referenced fill-in items (see Figure 2). In every blank of the latter type there was a number referring to a picture in a separate booklet. The pictures represented the words (concrete nouns) to be inserted in the blanks. The cloze items, which differed from the standard cloze procedure in that the blanks were few and appeared at irregular intervals, tested adjectives, verbs, and prepositions. Both A tests were based on the texts used in the experimental teaching. Each test contained 25 items.

... warming himself by the fire. Beside him was a (10) ..... filled with water.

They had been out hunting and fishing all day without any result ..... two trout, which they had caught in a stream not far from the cave, and a small (11) ..... which Bob had shot in a tree. ...

10

11

Figure 2

Extract from Test A (Text 1)

Test B. Several language-teaching experts have argued in favour of monolingual glossaries, saying that the foreign-language paraphrase results in additional learning that goes beyond the mere lexical item level (Jespersen, 1904, pp. 69-71; Brooks, 1964, pp. 186-188; Lado, 1964, pp. 121-130; Thorén, 1960, p.86; Hjelmström, 1959, pp.16-20; Meurlin, 1969; et.al.)

A very important aim of the investigation was therefore to try to find out whether learning new words entirely with the help of the target language results in some learning that is not as easily acquired if the words are learned through the source language. The most likely subsidiary learning of such a kind would be greater readiness to respond with the appropriate words to questions transformed from the target-language definitions. Let us take an example to clarify this. In Text 1 the word squirrel occurs. The bilingual glossary provides the Swedish word for the animal, viz. 'ekorre', and nothing else, whereas the monolingual glossary has the following English description:

> "A small wild animal which lives in trees and has a bushy tail. It collects nuts."

Now, even under the assumption that the monolingually trained students perform less well in the direct test on the item than do the bilingually trained students, one may very plausibly argue that the latter do not as readily as the former respond appropriately to a question derived from the target-language definition quoted. The following question would thus be easier to understand and answer for the students who have studied the monolingual glossary:

> "What is the English word for a small wild animal which lives in trees and has a bushy tail? It collects nuts."

In order to test the hypothesis seven such straightforward target-language questions were formulated for each of the two texts (Test B). The students were to write down their answers. All questions were closely linked to the definitions in the monolingual glossaries.

Questionnaire. A short questionnaire was administered after the lessons. Among other things the students were asked about their attitudes towards the two types of glossary. They were requested to check either of the following alternatives: "I think that one learns English best and most effectively if one has the new words explained in (a) English ☐ (b) Swedish ☐ ". The subjects were also asked to state whether their previous experience was predominantly monolingual or predominantly bilingual.

Results. Two sets of achievement scores were distinguished, viz. those obtained by the subjects who took part in all four lessons (two double sessions) and those obtained by all subjects, i.e. including those who missed either session. In view of the fact that the two kinds of scores differed very little from each other I will present the calculations based on the larger sample only.

Table 1 summarizes the results of the first experiment:

Table 1

Achievement Test Results in the First Experiment (Groups 1-4), All Subjects

		Test A		Test B		Total	
		M	S.D.	M	S.D.	M	S.D.
TEXT 1	Monolingual (N = 28)	8.00	5.54	3.00	2.15	11.00	7.39
	Bilingual (N = 23)	11.78	6.74	3.91	2.26	15.70	8.68
TEXT 2	Monolingual (N = 23)	12.39	6.56	4.00	2.20	16.39	8.49
	Bilingual (N = 29)	16.52	6.43	4.66	1.81	21.17	8 01
TOTAL	Monolingual (N = 51)	9.98	6.35	3.45	2.21	13.43	8.28
	Bilingual (N = 52)	14.42	6.92	4.33	2.04	18.75	8.67

The results are consistently in favour of the bilingual treatment. The difference between the totals of Test A is statistically significant at the .01 level of confidence ($t = 3.39$). Counter to what was expected the bilingual glossaries also produced better results in Test B. The difference is relatively smaller than in Test A, but it is still significant ($p < .05$).

The outcome of the replication is reported in Table 2:

Table 2

Achievement Test Results in the Replication (Groups 5-8), All Subjects

		Test A		Test B		Total	
		M	S.D.	M	S.D.	M	S.D.
TEXT 1	Monolingual (N= 25)	11.20	5.76	3.80	1.83	15.00	7.32
	Bilingual (N = 21)	11.48	6.53	4.29	1.95	15.77	8.31
TEXT 2	Monolingual (N = 17)	13.24	6.78	5.06	1.60	18.29	8.13
	Bilingual (N = 18)	16.05	5.49	5.61	1.29	21.67	6.35
TOTAL	Monolingual (N = 42)	12.03	6.20	4.31	1.83	16.33	7.74
	Bilingual (N = 39)	13.59	6.42	4.90	1.76	18.49	7.95

The replication results confirm the earlier findings insofar as higher mean scores were achieved by means of the bilingual glossaries. but the differences are smaller than in the first experiment. The difference between the totals of groups 5-8 is not statistically significant (.05 level).

As the two experiments were identically designed and executed the results may be added up in one comprehensive table, summarizing the main findings (Table 3):

Table 3

The Combined Achievement Test Results
(Groups 1-8), All Subjects

		Test A		Test B		Total	
		M	S.D.	M	S.D.	M	S.D.
TEXT 1	Monolingual N = 53	9.51	5.82	3.38	2.03	12.89	7.56
	Bilingual N = 44	11.64	6.56	4.09	2.10	15.73	8.41
TEXT 2	Monolingual N = 40	12.75	6.58	4.45	2.02	17.20	8.29
	Bilingual N = 47	16.34	6.03	5.02	1.66	21.36	7.35
TOTAL	Monolingual N = 93	10.91	6.33	3.84	2.08	14.74	8.13
	Bilingual N = 91	14.06	6.69	4.57	1.94	18.64	8.32

The bilingual glossaries systematically yielded better learning results than the monolingual glossaries. The difference between monolingual and bilingual grand total means (14.74 and 18.64, respectively) is statistically significant at the .01 level of confidence ($t = 3.22$). The hypothesis that monolingually trained students would perform better than bilingual students on Test B, which was slanted towards the monolingual treatment, has not been borne out by the data. The difference is instead in favour of the bilingual method ($p < .05$). There is only a very slight tendency for the monolingual treatment to yield relatively better results in Test B than in Test A, but the bilingual treatment is superior on both measures. The mean score for the monolingual treatment in Test A was 78 per cent of that of the bilingual treatment. In Test B the monolingual treatment score amounted to 84 per cent of the bilingual score. Thus, we have not been able to demonstrate that the monolingual study of foreign words results in a better ability to respond to stimulus sentences derived from the target language definitions in the monolingual glossaries.

Previous experience with monolingual/bilingual word learning did not affect performance in the experiment measurably. Those subjects who stated that they were familiar with monolingual glossaries from their earlier language studies did not achieve relatively better results in the monolingual lessons than did subjects who had had only bilingual glossaries.

It may also be briefly mentioned that the older students tended to perform relatively less well in Test A than in Test B. There was no correlation between age and results in Test A, but a negative correlation between age and results in Test B.

In the questionnaire the subjects were asked to express their opinions about the two types of word learning under investigation. The majority of students thought that English is more effectively learned through the native language than through the foreign language. There was also a difernce in opinion between the two experimental samples. The subjects in the first experiment (Groups 1-4) strongly preferred the bilingual method, whereas the subjects in the replication (Groups 5-8) expressed no such general preference.

Summary and Discussion

The objective of the investigation described in this paper was to find out whether studying new words in a foreign language (a) through text-reading and target-language explanations of the words, and (b) through text-reading and reference to native-language equivalents result in different learning effects. For this purpose eight groups of adult students were taught new English words according to those two principles, i.e. in the one type of lesson the meaning of the words was explained in the target language (monolingual glossaries), while in the other type of lesson the meaning of the words was explained by means of reference to the corresponding words in the native language (bilingual glossaries). The lessons were based on two texts containing the words to be learned. The subjects were matched and randomly assigned to the two kinds of treatment. The experiments were designed in such a way that all subjects were given both types of teaching (monolingual and bilingual).

The post-tests showed that the bilingual glossaries resulted in significantly better learning than the monolingual glossaries. It was also found that the monolingual study of new words did not result in a better ability to produce the critical words in response to questions derived from the target-language definitions (cf. pp. 9 and 12).

It is often held that in the teaching of new words in a foreign language reference should not be made to the learner's native language. Bloomfield (1933), for instance, points out that there is no one-to-one correspondence between the lexical items of different languages and warns against interference phenomena in the learning process: "Translation into the native language is bound to mislead the learner, because the semantic units of different languages do not match, and because the student under the practised stimulus of the native form, is alsmost certain to forget the foreign one" (p. 50). Brooks (1964) summarizes what the /English/ learner must not do in the following negative precepts:" (a) he must not speak English, (b) he must not learn lists of English--foreign-language equivalents, and (c) he must not translate from the foreign language into English. All these activities will nullify his efforts to establish within himself a co-ordinate system of two languages, and will instead only collapse the structure into a compound system with English dominant" (p. 52).

Our experimental findings do not support these views. On the contrary, the bilingual glossaries yielded better learning, not only with respect to the number of items recollected in Test A, but also with respect to the general command of the concepts studied, as evidenced by Test B. Introducing the native language had beneficial rather than adverse effects on the acquisition process. Obviously the 'dictum' that the native language should be altogether subordinated to the foreign language does not hold good in the case of vocabulary learning.

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